OWNER'S MANUAL

2009

XEBRA®

100% Electric Vehicle

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US Patents D550,588(Sedan) / D555,043(Truck)

ZAP!®

Ride the future®

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www.zapworld.com | Stock Symbol: ZAAP

IMPORTANT!

BEFORE YOU OPERATE YOUR XEBRA ZAPCAR® PLEASE READ THE ENTIRE MANUAL CAREFULLY

Care and Feeding of Your Xebra®

DO NOT PLACE MORE THAN 500 POUNDS -INCLUDING PASSENGERS- IN THE VEHICLE.
BALANCE THE LOAD SINCE THIS IS A THREE WHEEL VEHICLE.
DO NOT TOW THE VEHICLE WITH WHEELS TOUCHING THE GROUND.

IF YOU HAVE QUESTIONS ABOUT THE OPERATION OF THIS VEHICLE, YOU SHOULD CONSULT YOUR AUTHORIZED DEALER.

IT IS EXTREMELY IMPORTANT THAT YOU FOLLOW THE SAFETY GUIDELINES CONTAINED IN THIS MANUAL IN ORDER TO ENSURE MAXIMUM SAFETY.

FAILURE TO COMPLY WITH THE STANDARDS OUTLINED IN THIS MANUAL COULD RESULT IN FIRE AND/OR SERIOUS INJURY.

ZAP IS NOT LIABLE FOR ANY DAMAGE OR INJURIES CAUSED BY UNSAFE OR FAULTY REPAIRS, OR ALTERATIONS. ANY REPAIRS MADE TO THIS PRODUCT BY UNAUTHORIZED SERVICE TECHNICIANS ARE THE SOLE RESPONSIBILITY OF THE OWNER.

PLEASE DISPOSE OF USED BATTERIES IN A LAWFUL MANNER.

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QUICK GUIDE TO XEBRA DRIVING

The Xebra is technically a motorcycle and should be driven in a similar manner to a motorcycle. This means gradual turns and no sudden, sharp turns. Check with your local DMV laws to ensure compliance with license requirements.

To Drive:

1. Make sure the batteries have sufficient charge. A voltage reading of 79 or higher is fully charged.
Refer to Battery Maintenance section for charging instructions.

2. Fasten seat belt(s) and adjust mirrors. See Mirror section for proper procedure.

3. Place direction knob to N for neutral.

4. Check that the Master off button under the driver's seat is pulled out.

5. DEPRESS THE BRAKE PEDAL. This is important if you are on a slope.
As the car has no engine or gears, it will roll easily in the direction of the slope when the motor is not turning.

6. Place key in ignition and turn clockwise one (72V ignition) or two clicks (12V ignition).
You will most likely hear nothing! It's electric so there's no idling (you may hear the cooling fan). The voltage gauge will go up.

7. Release parking brake located on the lower left side of the driver's seat (sedan) or to the right of driver's seat (truck).

8. Turn direction knob to F for forward, or to R for reverse and press red reverse button.
If going in reverse, you will hear the reverse beeper.

9. Remove foot from brake and place foot on accelerator SLOWLY.

10. Drive carefully with gentle turns of the steering wheel.

11. Anticipate stops, your Xebra does Not have power brakes.

12. The most common reason the Xebra won't drive is the MASTER OFF BUTTON is pushed in.
The second reason is the parking brake is engaged.

13. Finally, do not forget to disconnect the charging cord.

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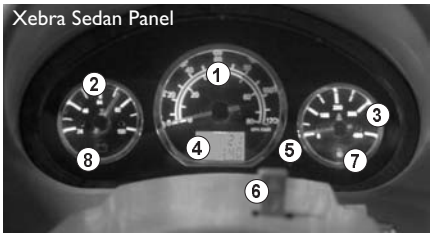
UNIQUE FEATURES

Xebra Sedan Panel



1. Speedometer
2. Voltage meter
3. Ammeter
4. Odometer/ Trip odometer
5. Trip odometer reset button
6. Hazard lights flasher button
7. Hand brake engage light
8. Low Battery indicator

INSTRUMENT PANEL

There are three main components of the instrument panel, the speedometer, the voltage meter and the ammeter (speedometer and voltage meter only on the ZAPTRUCK).

The inner dial of the speedometer indicates speed in MILES per hour, the outer in KILOMETERS per hour. Also on the speedometer, you will find the overall odometer and the trip odometer as well as blinker indicators, high beam indicator and reverse indicator.

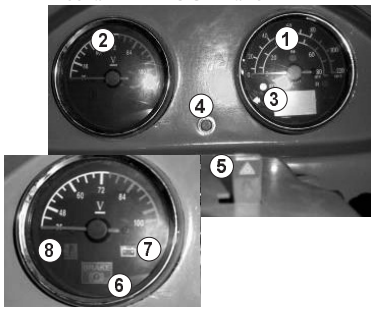
The trip odometer is re-settable using the small red button between the dials. We recommend you use it to keep track of the distance driven since the last charge to determine your battery capacity or consumption.

The Sedan is equipped with both a voltage meter (to indicate battery voltage), and an ammeter (to indicate current draw). With these two gages, you can get a better indication of your vehicle's performance. Generally speaking, the harder the motor is working the more current it will draw and the lower the battery voltage will drop, at least momentarily. This means that starting from a stop, climbing hills, and driving at higher speeds will all increase power demand from the motor and reduce range. Your vehicle will be operating most efficiently when the voltmeter reads higher voltages and the ammeter reads lower current draw. Familiarize yourself with the interaction of these indicators to maximize range. The conservative driving techniques discussed elsewhere in this manual will help you attain this result.

NOTE: ***Pin-point accuracy is not achieved with this voltage meter. It is a relative measurement to aid you while driving. Periodically check your battery voltage with a digital meter. See BATTERY section.***

Also on the voltage meter are red indicator lights for high motor temperature, low battery voltage and hand brake engaged. The brake light will also illuminate if the master brake cylinder needs attention or if the brake fluid is low. See MAINTENANCE section.

Xebra ZAPTRUCK Panel



1. Speedometer
2. Voltage meter
3. Odometer/ Trip odometer
4. Trip odometer reset button
5. Hazard lights flasher button
6. Hand brake engage light
7. Low Battery indicator
8. High motor temperature light

IGNITION

Put the key into the ignition and turn it clockwise one or two clicks. Unlike a traditional engine, you will Not hear a loud noise or revving. You may hear the sound of the motor cooling fan. The cooling fan is operated by a temperature sensor on the motor. If the motor gets hot (60 degrees C), the cooling fan turns on. If you open the window, the sound will be louder. See DRIVE MOTOR section for more information.

As you select **forward or reverse** on the console, you will hear clicks as relays are activated (see Direction Knob below).

MASTER OFF BUTTON

Under the driver's seat is a large red button. It is operated by pushing in for off and pulling out for on. This button disables the entire 72 volt electrical system. You may want to push it in if: you plan on leaving the car idle for many days; for safety during repairs; in the event the car is damaged in an accident, etc.

This button MUST BE PULLED OUT for normal operation and charging the vehicle.

DIRECTION KNOB

Located on the console is the directional knob. This is a three position turn switch that controls the forward, neutral and reverse functions. Simply turn the knob to F for forward, N for neutral and R for reverse. To drive in reverse, you must also press the red Reverse button, which will activate the reverse safety beeper. The purpose of this extra step is to prevent the rapid change of direction while the motor is still turning. Changing direction while the motor is turning can damage the motor controller and shorten its life. Make sure the car is completely stopped before changing directions.

POWER CORD

The Xebra comes standard with a 10 foot power cord for charging, stowed to the right of the front passenger's seat. If you choose to use an extension cord, a heavy duty 12 AWG (or known as #12/3) extension cord is necessary. Ideal length is no longer than 25 feet. If a cord is longer than 25 feet, use 10 AWG (#10/3) cord. Be sure the charging cord is disconnected before driving. Be responsible with your cord. Position it to avoid tripping over it, driving over it, dropping things on it or otherwise damaging it.

FRONT & REAR DECK LIDS

The Xebra Sedan is a hatchback with storage capacity in the rear but no storage space inside the front deck lid. Do not attempt to stow, create storage or strap anything in this area. It allows no safe place for foreign objects. It's very important not to this open while the Xebra is turned on. This could result in unexpected injuries.

To open the front deck lid, pull the release handle located on the front passenger's side. Pull gently and the lid latch will release. There is a bar that is intended to hold the deck lid open. Do not force the deck lid upward, this will result in damage to the windshield and put stress on the hinges.

Inside the front deck lid you will find the brake fluid reservoir, the horn, and the windshield fluid tank. In the center you will see the access to the front tire and suspension. It is not recommended that you make any adjustments to braking or suspension systems aside from checking brake and windshield fluids regularly.

To close the front deck lid, remove the support bar and place it into its clip. Close and press the lid down (towards the back) gently until it clicks. Do not slam the front deck lid. Slamming could damage the deck lid clamp. Check to ensure the deck lid closed firmly and properly. If not, release the lid as before and close it again. Pressing down hard on it with a hand or knee may leave an indentation in the deck lid.

To open the hatchback press the release button in the rear of the vehicle and open upwards. Beneath the rear storage area you will find a rear deck lid. To open, you must push the rear seats forward and lift the lid (Fig 1). Inside you will find the motor, the contactors, the battery charger and the motor controller. These are often very hot, even during charging. DO NOT TOUCH them. If you see loose or frayed wires or damage, contact your local service center or dealership. Do not operate the Xebra if any such damage has occurred.

To close the hatchback, lower, close and gently press at center until it clicks. Do not slam it. Rough handling can cause damage to the latch and/or body.

The following parts and components are Not intended to be serviced by the user, only a ZAP-trained technician. Any repairs or alterations made to the vehicle **WILL VOID THE WARRANTY!**

DRIVE MOTOR

The Xebra's rear wheels are powered by a 72VDC brushed series wound drive motor rated at 5 KW. Located inside the rear deck lid, this motor has a continuous horsepower output rating of about 5 HP with a peak power somewhat higher. This is sufficient to propel the vehicle at up to 40 MPH on level terrain.

COOLING FAN

The motor is equipped with a temperature-activated cooling fan, located inside the rear deck lid and above the motor. A temperature sensor on the motor turns the fan on at 60 degrees C. Operating the vehicle without the cooling fan working can cause the motor to overheat and could lead to serious damage. If the motor gets too hot (135 degrees C), a light on the dashboard voltage meter will illuminate, alerting you to the problem. Stop the car and allow the motor to cool before continuing. Do NOT use water to cool the motor! It is an electrical component and can be damaged by moisture.

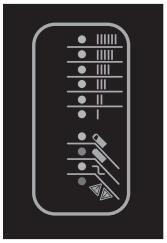
MOTOR CONTROLLER

Located in the rear deck lid and inside the High Voltage Electrical Components Box, large cables connect the battery pack to the motor controller through the power contactors. Its function is to take the input from the accelerator and adjust the speed of the motor accordingly. It is programmed by ZAP with a general-purpose power curve, and is not user serviceable.

BATTERY CHARGER

Located inside the rear deck lid, the battery charger regulates the power going into the traction battery pack (72 volt) from the 110VAC charging cord. It will shut off automatically when charging is complete.

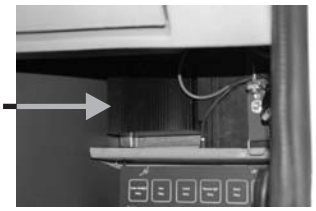
To determine proper function of charger, refer to the **Checking Battery Voltage** section.



The charger has a group of 6 graduated lights indicating the relative charging current. When initially plugged in to a depleted pack, the top light will illuminate, indicating a relatively high charging current. As the pack is charged, the lights will illuminate sequentially. At some point in this process, the top light in the next group of 4 will illuminate, indicating an 80% charge has been achieved. When all of the graduated lights are off, the second light in the group of 4 will illuminate, indicating a full charge. The third light indicates that AC power is applied to the unit. The last light is red and indicates a fault condition.

Refer to **Charger Instructions** to determine possible problem.

If fault is indicated, the charger must be unplugged for 20 seconds to be reset.



DC TO DC CONVERTER

Located under the dashboard on the passenger side, just above the fuse box (or in the cab in ZAPTRUCK), this device acts like the alternator in a regular gas car. It charges the 12 volt battery from the 72 volt traction pack while driving. It only operates when the key is turned on.

HORSEPOWER VS XEBRA POWER

Here are some interesting facts about your Xebra. The batteries can store about 7.2 kWh of energy. This translates into about 0.24 "Gallons" Of gasoline! But only 0.15 "Gallons" Are actually usable, about 4.75 kWh.

Your motor is rated at 5kW, which translates to 6.71 HP. Your peak horsepower is somewhat higher. When the motor is running at 5 kW, it is using about 70 amps from the 72V battery pack. To calculate your "Miles per gallon," Use the following formula:

MPG= (miles traveled X 30) / kWh

A typical value is about 150 mpg. An inexpensive watt hour meter (Kill A Watt, PN 9034) can be purchased from your dealer or ZAP. This will give you the kWh part of the above equation. To calculate the cost per mile, use the following formula:

Cost per mile = (kWh X cost per kWh) / miles driven

A typical value is $.02 per mile at $.10 per kWh, or about $.47 per charge.

BATTERIES

The most important component of the Xebra that you can control is the batteries. This section contains the procedure to follow in order to optimize the batteries' performance and life. If the batteries are not maintained properly, the ZAP (as well as the manufacturer's) battery warranty may not be valid.

CONDITIONING THE BATTERIES

1. Before you operate the Xebra for the first time you must fully charge the batteries using only the supplied internal charger. This is an important step. If you fail to properly condition your batteries, their life and performance will suffer!

2. To charge the batteries, plug the extension cord into the charger socket located on the rear passenger side of the Xebra in the hatch that resembles a gas hatch. Make sure the outlet is 110V and the circuit is rated for 20 amps and is a dedicated circuit.

3. Be sure your batteries are FULLY charged. It's best to charge them 24 hours, especially the first time. Your batteries are fully charged when the voltage meter on the dash reaches 79 volts or higher. Remember the voltage meter will Not function until the key is on. The charger will shut off automatically when charging is complete.

4. Like a combustion engine, the batteries will require time to properly break them in. Five or more charge and discharge cycles are needed to break in the batteries for optimal range. After the first full charge, drive the Xebra 5 miles, then charge fully. The next trip, drive 8 miles and charge fully. The third trip, drive 12 miles and charge fully. On the fourth trip, drive 15 miles and charge fully. This procedure will maximize the capacity of the batteries. On your fifth trip, drive until the batteries are very low, but still drivable. Note how many miles this is. It is recommended to discharge the batteries no more than 50% before charging for optimal battery performance. You can estimate this percentage by mileage. Typical is a maximum of 15 miles for optimal performance.

5. **IMPORTANT!**: If your Xebra will be exposed to **FREEZING** conditions, your batteries MUST BE fully charged or they will be **DAMAGED** and the warranty will be void!! Keep your vehicle warm. Charge it in the garage, instead of outside. The colder it is, the less range and battery life you will have.

CHARGING THE BATTERIES

Before charging make sure the ignition switch is in the "OFF" position and the key is out of the ignition. It is best to charge the Xebra overnight.

1. Plug the charger into a 110 volt wall outlet. Any outlet to be used for charging needs to be rated at a minimum of 20 amps and needts to be a dedicated circuit to charging the Xebra.

2. It can take approximately an hour to refresh your Xebra to a point where you can drive it for another three to four miles. Optimal charge is achieved after eight hours (longer for extended range batteries). The charging system will stop the flow of current when charging is complete.

3. When unplugging the power cord from the Xebra, don't forcefully pull the cord from the charger jack. Use caution to keep the contacts intact over time

4. Store and charge your Xebra at temperatures between 50 deg. F (10 deg. C) and 100 deg. F (38 deg. C). See CONDITIONING THE BATTERIES for important information on freezing conditions.

5. Keep your batteries charged. Batteries stored for long periods of time will self-discharge. The higher the temperature, the greater the rate of self-discharge.

6. Keep the terminals on the batteries, contactors, motor controller and motor CLEAN AND TIGHT! Loose or dirty wires and connectors can lead to unnecessary battery drain or diminished performance from your vehicle.

7. Recharge your batteries when you have discharged a maximum of 50% as described in the CONDITIONING THE BATTERIES section for optimal performance. Greater depth of discharge on a continual basis will diminish the overall life of the battery. Unlike other rechargeable batteries, it is not possible to damage the batteries by charging them frequently.

8. Recharge your batteries at least once every 30 days.
Hint: Using a cord with a lighted plug end will let you see immediately if there is power to the outlet you are using. Make sure you have the proper gauge cord for the distance from the outlet, as discussed above.

ZAP ASSUMES NO RESPONSIBILITY FOR DAMAGE OR LOSS OF RESOURCES IN CONJUNCTION WITH IRRESPONSIBLE CHARGING PRACTICES.

CHECKING BATTERY VOLTAGE

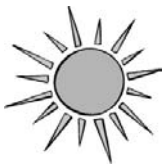
As noted in the Instrument Panel section, periodic checks of the battery voltage with a digital meter are recommended. To manually check voltage, first turn the heater on for 2 to 3 minutes (to remove surface charge). Leave heater on. Place a lead on each terminal of the first battery. Record the reading. It should be 12.6V or higher. Repeat for all six batteries. **USE CAUTION!!** Avoid shorting terminals together with tools or your body!! Add the six readings together and compare with analog meter reading. Alternately, make one reading across the entire pack by placing one lead of your meter on the beginning and one lead on the end of the string. This requires long leads for the sedan. The digital meter will give you a very accurate reading, whereas the dashboard meter is a relative measurement to aid you while driving. Another, perhaps more accurate way to determine the state of the batteries and charger function is to buy a Kill-A-Watt hour meter. It will record how much energy is going into the batteries during charging. A fully discharged pack should take 4.75kWh or higher.

The ZAP warehouse in Santa Rosa, California will accept old battery packs. Or you can drop them off at your local hazardous waste disposal facility, most Interstate Battery distributors or any other battery recycler (see Recycling Batteries).

EXTENDING THE RANGE

The main limitation of any electric vehicle (EV) is its limited range between charges. The duration of an average charge, at an even speed of 30 mph on level terrain, will yield approximately 20 miles of travel on one charge. Lower speeds will yield more miles, higher speeds less miles per charge. Factors such as prolonged high speed, excessive stop and go traffic, inclined or uneven roads and weight will play a role in the distance you can drive. However, if you're like most Americans and your household owns more than one car, then at least one of these cars probably doesn't go more than 30 miles in any given day, which is within the range of your Xebra. Note: If you plug in twice a day you can double your daily range! **Stay aware of the voltage meter**. If your level drops below 60V while you are driving at a steady speed, you will not be able to operate the vehicle. If you find you are low on power, stop at a location where you can plug in your Xebra. In the event of an outage, we ask that you are responsible with your charging methods. The use of business power outlets without express permission is prohibited. Please be aware of your charging location. Look for public charging locations. Allowing the batteries to rest for 30 minutes may give you a mile or two more.

Until the better battery arrives, here are some things you can do to extend your range.



* IMPORTANT: Charge your batteries ALL THE WAY! If you are plugging into a 110 volt 20 amp circuit, it can take up to 12 hours to charge batteries that are 100% discharged.
* Take off slowly, avoiding jack-rabbit starts. Pretend an egg is between your foot and the accelerator pedal.
* Add solar panels- this will increase your Xebra's range and battery lifetime.
* Keep your speed slow and steady. A constant 30 mph is better than going 20, 30, 40, 30, etc.
* Anticipate stops and coast into them. Since there is no idle in an EV, you can save quite a bit of energy here.
* Correct tire pressure is critical to maintain good performance and range. It is generally recommended that the tire pressure be kept at the tire manufacturer's maximum rated pressure of 51 psi. However, if the ride is a little too rough, the pressure in either the front tire alone or all three tires may be reduced slightly. This will increase the rolling resistance and reduce the range somewhat, but depending upon your driving requirements, you may decide that the smoother ride is worth the trade off.
* Avoid steep hills. Take a more level route if possible, even if it is longer.
* Limit the use of all other electrical items, especially your heater.
* Eliminate excess weight from your EV (-100 lbs = 2% increase in range).
* Keep your Xebra garaged during cold weather. Trickle charging with solar panels will help keep the batteries warm, permitting them to hold their charge longer.
* Be sure your batteries are fully charged before leaving on your trip.
* Use the correct gauge extension cord and not longer than needed (12 AWG-#12/3 or 10AWG-#10/3 must be used for charging). See Power Cord section for more information.
* Opportunity charge, that is charge wherever and whenever you can (even 30 minutes of charging will give you more miles than the mathematics suggest). However, remember that for optimal battery life, charge before the battery is 50% discharged as described in the Conditioning the Batteries section.
* Be sure your brakes are properly adjusted and are not rubbing when not engaged.

RECYCLING BATTERIES

Do not attempt to destroy or disassemble the battery pack or remove any of its components. Also, never touch both terminals with metal objects or body parts as a short circuit may result. Keep the battery away from children. Failure to comply with these warnings could result in fire or serious injury.

Old batteries must be recycled. Lead, mercury, cadmium and a host of other toxic heavy metals contained in most consumer electronics and batteries pose a real threat to public health and the environment. Recycle your batteries properly, keeping in compliance with current environmental laws. Do Not dispose of lead-acid batteries in ordinary trash. Consult your local waste authority for information regarding available recycling and/or disposal options. CALIFORNIA: According to The California Department of Toxic Substances Control (DTSC), it is mandatory to recycle your batteries. As of February 9, 2006, according to California State Law, disposing of batteries with regular garbage is against the law!

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic safety Administration (NHTSA) in addition to notifying Qingqi Group Motorcycle Co. LTD.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Qingqi Group Motorcycle Co. LTD.

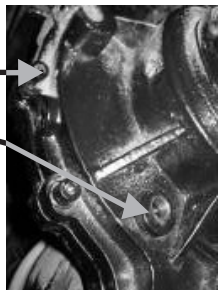
To contact NHTSA, you may call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153); go to http://www.safercar.gov ; or write to: Administrator, NHTSA, 400 Seventh Street, SW., Washington DC 20590. You can also obtain other information about motor vehicle safety from http://www.safercar.gov.

MAINTENANCE

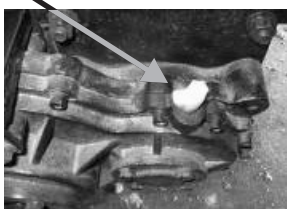
GEAR BOX OIL

After 500 miles you will want to change the oil in the gear box.

1) Remove the square head drain plug at the bottom of the gear box and drain the oil into a pan. Be careful how much torque you put on the bolts, the plug bolts are made of a semi-soft metal and you don't want to strip them.
2) Replace the bottom drain plug bolt and remove the square head side overflow plug. Take your time and go easy.
3) Remove the white oil spout plug at the top of the gear box and SLOWLY pour the oil into the spout area until it begins to come out the side overflow hole. It will take about 6-8 oz. of lubricant.
4) Replace the overflow plug and the oil spout plug.
5) Look in the phone book for a place that recycles oil or disposes of oil.
6) After the break-in period, check periodically with a dipstick and change when dirty.



It is recommended to use Lucas Heavy Duty Oil Stabilizer at 100%. A gear oil weighted at 80/90 will be suitable, too.



BRAKE FLUID

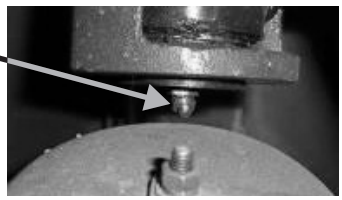
Inside the front deck lid and to the right is the brake fluid reservoir. Check the level regularly. Gently twist the cap and lift off. You will see directly into the brake fluid reservoir. If the fluid level is low, fill with DOT Type 4 brake fluid, using a funnel. Do not spill fluid on tires, brakes or paint. Also, the brake light on the voltage meter will illuminate if the master brake cylinder needs attention or if the brake fluid is low.

WINDSHIELD WIPER FLUID TANK

The Xebra steel Sedan comes with a windshield wiper fluid tank inside the front deck lid to the left. Check the level regularly. As with the brake fluid reservoir, gently twist the cap and lift off. You will see directly into the wiper fluid tank and fill appropriately when needed.

ZERK FITTING

Periodically lube the Zerk fitting with a high-quality, marine-grade, waterproof lubricant. It is located just above the front tire.



It is recommended to have regular maintenance performed on your Xebra by a trained technician. At 1000 miles, your dealer should change the gear oil. Also, the batteries should be checked with a digital volt meter. This will catch a failed charger early. For maintenance schedules, please refer to your Service Intervals Sheet. After that, your dealer will recommend a maintenance schedule based upon your driving conditions.

ADDITIONAL EQUIPMENT AND INFORMATION

SEAT ADJUSTMENT

The seat adjustment lever is below the front edge of the driver's and passenger's seats. We recommend that you make the adjustments BEFORE you get in, you could hit your knees on the steering wheel or dashboard if you move forward too fast, or hurt someone's legs or feet in the back seat if you move back suddenly. Be sure to keep fingers, feet and any other objects out of the seat track.

Adjust the back of the seat forward or back by turning the large dial on the side of the driver's or passenger's seats. This is something you can do while seated, but be aware of people in the back seat. Their knees and feet can be cramped or hurt while you are making the adjustments.

HEATER

The switch for the heater is located on the mid console. There are two vents, both in the front, one on the driver's side and one on the passenger's side. The heater is a 72-volt unit. It is primarily used to defog the windshield. Using it will rapidly deplete the batteries, shortening your range.

MIRRORS

The rear view mirror on the windshield should be set so that you can comfortably see behind the vehicle. It is recommended that you have a point of reference behind the vehicle so that you can properly see other vehicles or obstructions such as poles, fire hydrants or bicycles. Since the back window is level with most truck or SUV headlights, it may be necessary while driving at night or through tunnels to adjust your mirror.

Side view mirrors are adjusted by pressing gently on the bottom corners of the right and left side of the mirror itself. Have someone help you set the passenger's side mirror for optimal rear view. You may install a blind spot mirror on the side mirror to give you a better peripheral view. These can be purchased at any auto parts store.

IMPORTANT: If you press too hard on the side mirror glass while making the adjustments, you may crack the mirror, so be gentle. Never clean the mirrors with an abrasive or dry paper towels, this will scratch them.

HORN

The horn is located in the center of the steering wheel. It is powered by electricity. The key must be on for the horn to operate.

TURN SIGNALS

The right and left blinker lever is on the left side of the steering column. You should always signal 10-15 seconds before you intend to make your turn. Given the size of your Xebra, be aware that you may be in other vehicles' blind spots.

The turn signals are self-centering, so they will return to neutral after the turn. However, if the turn is too gradual, manual re-setting may be required.

LIGHTS

The Xebra has three lights in the front. The center is the running light. It is always on when the key is on. It has two settings, high and low. The center light high/low switch is located on the console. Toggle the switch for high and low.

The control for the two headlights is found on the same lever as the turn signal, on the left side of the steering column. Turn the dial counter-clockwise to turn on the lights. The first position is off. Second position causes the headlights to turn on similar to running lights. Third causes each headlight's main bulb to be lit as a low beam light. Fourth position is the same as second position.

LOCKS

The Steel Xebra Sedan comes with Central Electronic Door locks and Key Fob.

On the Xebra ZAPTRUCK all locks are manual. Additionally, there are no child safety locks. Please keep your children in their seat belts at all times and be alert. Unlock the Xebra from the driver's side. Always lock and unlock with the key to avoid locking the keys inside. If you do lock yourself out of the Xebra, contact your roadside assistance provider to open it. Do not attempt to open with a coat hanger, as you may damage the interior of the door or window mechanism, etc.

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SPARE TIRE/JACK

The Steel Xebra Sedan does NOT come with a spare tire. Optional spare tire can be purchased for $50.
Read the ADDITIONAL INFORMATION REGARDING THE XEBRA ZAPTRUCK for information the pickup's spare tire.

DRIVING SAFELY
There are four seat belts installed in your Xebra. It is both unsafe and illegal to place more than one person in a single seat belt. It is very important to wear them at all times, even for a drive down the block. Follow seatbelt laws as with any other vehicle. Note that the rear seats do not have lap belts.

For the Xebra Sedan, do not carry more than 4 people, or more than 500 lbs. Do not place one seatbelt over two children.

These recommendations are for your safety while operating the Xebra. The Xebra is technically a three wheel motorcycle that encloses the passengers. This vehicle does not have airbags or supplemental restraint systems. Because of the size and weight of the vehicle, it does not have crumple zones or inner-body support like other vehicles. The best safety measure is to operate your Xebra carefully, following the guidelines in this manual. The Xebra is NOT intended for highway or freeway travel or roads where the speed limit is 45 mph or greater. Higher speeds will rapidly deplete your batteries. Secondly, if an accident occurs at high speed, the vehicle will be unsafe.

DRIVING CONDITIONS
Wet or oily surfaces, loose gravel or sand and tire and brake conditions will affect your braking. Do your best to be aware of changing road conditions and adjust your speed and braking distance. If you are in an emergency braking situation, you may also pull up on the parking brake to help stop you.

Do not operate your Xebra on extremely steep inclines. The suspension and braking is not engineered to handle these angles. Steep hills can be dangerous and potentially unsafe, so be mindful of the Xebra's capabilities.

The Xebra is not equipped with anti-lock brakes or traction control. Operate at a safe distance from other vehicles and pedestrians. This is a very light and maneuverable vehicle, but like any vehicle, it must be operated within its limits.

ENVIRONMENTAL CONDITIONS
A major factor affecting your batteries is temperature. Extreme heat or cold will drastically alter the batteries' capacity and will require longer charging or give less range if very cold. See the BATTERY MAINTENANCE section for important information on how temperature affects the batteries. In cold climates your Xebra should be kept warm in a garage or enclosure. In hot climates, park in the shade or keep in a cool garage or enclosure.

DO NOT POUR WATER ON THE MOTOR, MOTOR CONTROLLER, DC TO DC CONVERTER OR BATTERY CHARGER TO COOL or HEAT THEM! They are electrical devices and this will void your warranty, cause severe damage to your vehicle and result in physical harm.

WEIGHT LIMIT
The TOTAL payload is 500lbs. Speed and weight will change your battery consumption. The more the batteries have to work, the quicker they will need recharging.

The same rule applies to cargo. Passengers plus cargo should not exceed 500 lbs. If you are unsure about the exact weight of your passengers or the materials you intend to transport, please use common sense and do not put too much strain on your Xebra's motor, batteries, suspension or tires.

More weight will also require more stopping distance. Your Xebra is Not equipped with power brakes. Exercise caution and do not follow too closely. Be aware of road obstructions.

IN CASE OF AN ACCIDENT
In the event of an emergency or accident, push in the large red master off button located just under the front edge of the driver's seat then immediately leave the vehicle. Do NOT go back into the vehicle to retrieve items, as there may be battery damage or electrical dangers. See the Master off button section for more information.

Be aware of the battery compartment in the center console area and under the rear seat. If battery fluids or wires are exposed, DO NOT TOUCH! Acid will burn your skin and wires may still be conducting electricity. Baking soda is a good neutralizer in the event of a battery spill.

POLITICS
There is no technical reason a full-fledged electric vehicle cannot be available to everyone at a reasonable price. Research and investment are the obstacles, and political will to pursue this goal. Write your elected officials to push for EV battery research or EV incentive legislature. And to go totally green, install a Solar Electric charging station on your house or garage.

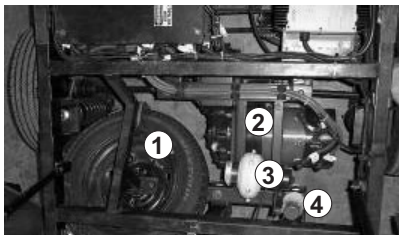
ADDITIONAL INFORMATION REGARDING THE XEBRA PICKUP (ZAPTRUCK)

The ZAPTRUCK weight capacity is 500 lbs including passengers. The Gross Vehicle Weights and shipping weights can be found on page 30.

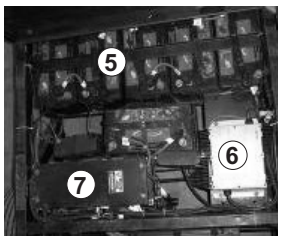
Most of the components in the ZAPTRUCK are identical to those described in the Sedan Manual. The locations vary somewhat.

PARKING BRAKE
The parking brake is located to the right of the driver's seat, between the driver and passenger. Operation is the same as for the SD.

BATTERY CHARGE CONTROLLER/MOTOR CONTROLLER/DRIVE MOTOR/COOLING FAN
These components are all located under the PK bed. With the bed in the dump position, all are easily accessible.



1. Spare tire
2. Motor
3. Cooling Fan
4. Horn



5. Batteries
6. Charger
7. Controller

DC TO DC CONVERTER
This component is located in the same place as on the sedan, inside the front deck lid and on the left.

SEAT ADJUSTMENT
The PK has very limited seat adjustment, due to the proximity of the seats to the rear of the cab. If you need a bit more room between the steering wheel and seat, move the seat up so you can tilt the seat back.

ZAPTRUCK SPARE TIRE
The spare tire is located under the rear of the bed. Remove it by inserting the long tool provided through the hole on the bed and into the receiver above the tire (Fig 1). Rotate the handle until the tire drops far enough to release it. Some spares are bolted on.
When replacing the spare, be sure the tabs on both sides are over the tire to secure it (Fig 2).
Position jack as shown on Fig 3 to change the front tire.
Position jack as shown on Fig 4 to change the rear tire.

Fig 1

Fig 2

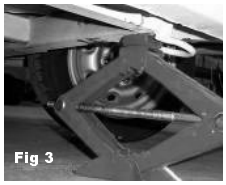


Fig 3

Fig 4

Tire lowered.

DUMPING AND SECURING THE BED
The Xebra PK is equipped with a dumping bed. Additionally, all four sides of the bed can be lowered. To dump the bed, release the two latches on either side of the bed and underneath.

Hold the bed securely as shown and pull backward. The vehicle will not tip over with the bed in the fully dumped position.

To fold down the sides, release the latches holding the side you wish to fold down. There are a total of four latches. Remember, each side is held by two latches! Dumping combined with the ability to transform it into a flat-bed makes the PK a very versatile animal.

SAFETY WARNINGS

THE PURPOSE OF SAFETY SYMBOLS IS TO ATTRACT YOUR ATTENTION TO POSSIBLE DANGERS. THE SAFETY SYMBOLS, AND THE EXPLANATIONS WITH THEM, DESERVE YOUR CAREFUL ATTENTION AND UNDERSTANDING. THE SAFETY WARNINGS BY THEMSELVES DO NOT ELIMINATE ANY DANGER. THE INSTRUCTIONS OR WARNINGS THEY GIVE ARE NOT SUBSTITUTES FOR PROPER ACCIDENT PREVENTION MEASURES.

Failure to obey a safety warning can result in injury to yourself or others. Always follow the safety precautions to reduce the risk of fire, electric shock and personal injury.

PRE-OPERATIONAL SAFETY WARNINGS

1. Read and understand this owner's manual before using this unit. Be thoroughly familiar with the proper use of your Xebra.
2. Thoroughly inspect your Xebra for loose or damaged parts before each use. If there are any loose or damaged parts, have a technician perform the needed adjustments or repairs before starting your Xebra.

GENERAL WARNINGS

1. You should not smoke while operating a Xebra. Keep the Xebra away from open flames such as lighters, etc. Never smoke while charging.

2. The operator must know and obey all local laws concerning the operation of, and equipment requirements of, electric vehicles. Make sure that your equipment and operation of your electric vehicle meets these standards. Failure to obey these laws may result in severe injury or death.

3. AVOID UNINTENTIONAL STARTING - Do not leave the Xebra with the key in the ignition when not in use.

4. DO NOT disassemble the motor controller. Return the Xebra to your authorized service dealer for service or repair.

5. DO NOT wash the exterior of the car with the center headlight on! The light gets very hot and immersion with cold water can crack the glass.

BATTERY WARNINGS

1. To reduce the risk of injury, use only batteries provided or recommended by ZAP. Other batteries may explode causing personal injury and damage.
2. DO NOT PLACE THE BATTERY NEAR FIRE OR HEAT. It could explode.
3. Batteries can emit explosive gases while being charged. Read the instructions supplied before attempting to charge your battery.
4. **PERIODICALLY BE SURE ALL BATTERY CONNECTORS ARE TIGHT!**

CHARGER WARNINGS

1. Before charging, read the applicable sections, including BATTERY Charger, Battery Maintenance and Power Cord.
2. USE ONLY THE APPROVED GAUGE POWER CORD with your Xebra. Use of any other cord could cause the battery to explode, causing serious injury.
3. Do not expose the charger to moisture or water.
4. To reduce the risk of damage to the charger and cord, disconnect the charger by taking the plug in hand and pulling it out of the wall. Don't disconnect it by pulling on the cord.
5. Make sure the cord is located so that it will not be stepped on, tripped over, or otherwise be subject to damage or stress.
6. An improper extension cord could result in fire or electric shock. If you must use an extension cord ensure that:

a. The pins on the plug of the extension cord are the same number as the charger. It must be grounded.
b. The extension cord is the proper size for the amperage and in good electrical condition.

7. If the cord or plug is damaged, replace the cord completely.
8. Do not operate the Xebra if it has received a sharp blow, been struck, or been damaged in any way.
9. Do not disassemble the charger. The charger is not serviceable. Disassembly may result in electric shock or fire.
10. To reduce the risk of electric shock, unplug the charger from the outlet before cleaning the Xebra
11. It is ideal to charge in dry or sheltered conditions. Charging in heavy rain or precipitation may lead to mechanical or personal harm.
12. Charge in a well-ventilated area away from sparks, flames and smoking areas.
13. For optimum performance, your Xebra should be charged in a location where the temperature is more than 50 deg. F (10 deg. C) but less than 100 deg. F (37 deg. C). See BATTERY MAINTENANCE.

OPERATIONAL SAFETY WARNINGS

1. Keep hands, face, feet, and long hair away from all moving parts.
2. Do not touch the wheels while they are rotating.
3. Be alert. To prevent injury to yourself and to others, do not operate your Xebra if you are fatigued or on medication.
4. Do not operate your Xebra while under the influence of drugs, alcohol, or any other controlled substance.
5. Be sure all wire connections, especially all battery connections, are clean and tight.
6. Follow all federal, state, and local laws regarding electric three-wheeled motorcycles/vehicles.

OTHER SAFETY WARNINGS

1. Keep your Xebra in good working condition. Call your authorized service dealer for repairs or maintenance procedures that are not described in this manual. Visit www.zapworld.com for the name of a dealer near you.

2. Use only original equipment manufacturer's replacement parts when servicing this Xebra. These parts are available from your authorized service dealer. The use of non-standard parts, or other accessories or attachments not designed for the Xebra, could result in serious injury to the user and damage to the Xebra.

IT IS EXTREMELY IMPORTANT THAT YOU FOLLOW THE SAFETY GUIDELINES CONTAINED IN THIS MANUAL IN ORDER TO ENSURE MAXIMUM SAFETY.

FAILURE TO COMPLY WITH THE STANDARDS OUTLINED IN THIS MANUAL COULD RESULT IN FIRE AND/OR SERIOUS INJURY.

THE MANUFACTURER IS NOT LIABLE FOR ANY DAMAGE OR INJURIES CAUSED BY UNSAFE OR FAULTY REPAIRS. ANY REPAIRS MADE TO THIS PRODUCT BY UNAUTHORIZED SERVICE TECHNICIANS ARE THE SOLE RESPONSIBILITY OF THE OWNER. ANY ALTERATIONS WILL VOID THE FOLLOWING WARRANTY.

WARRANTY

January 2009

1. WARRANTY COVERAGE PERIOD

The MANUFACTURER warrants from the date of delivery to the first consumer, that each XEBRA Electric Vehicle (XEBRA) sold as "NEW" and "UNUSED" in 2008 and pre-delivered by an authorized dealer, and a copy of the bill of sale and registration-warranty card has been presented to the manufacturer will be free from any defect in material and/or workmanship for a period of:

* SIX (6) MONTHS WARRANTY
* NINETY (90) DAYS, for rental use owners
* ONE (1) YEAR WARRANTY on the controller
* TWO (2) YEAR WARRANTY on the charger
* PRORATED WARRANTY on the batteries

All-Inclusive Coverage

The manufacturer will repair or replace, as its option, all genuine manufacturer parts found faulty in material and/or workmanship, under normal use, maintenance and service, with genuine manufacturer parts without charge for parts and labor, at any authorized XEBRA dealer during warranty coverage period.

*** Batteries covered by Battery Manufacturer.**
*** Charger covered by Charger Manufacturer**

All genuine manufacturer accessories are warranted with respect to parts and labor against defects in materials and workmanship for a period of 90 days from the date of purchase to original retail purchaser.
Except as otherwise provided herein:

2. WHAT IS NOT COVERED

- Normal wear and tear items such as the charger plug and receptacle, seats, windshield wiper blades, trim pieces, fuses, decals (except safety decals), brake pads, brushes, bushings, light bulbs, mats and pads, cosmetic deterioration, and items which deteriorate or fail due to exposure;
- Damage caused by failure to provide proper service, maintenance and/or storage, as described in the manufacturer's Owner's Manual.
- Damages resulting from improper repairs, modifications or use of non-approved parts or repairs done by a non-authorized XEBRA dealer;
- Damage resulting from continued use of the vehicle after a defect is or should have been discovered.
- Damage resulting from accident, fire, explosion, theft, vandalism, riot or any act of God.
- Damages to batteries resulting from lack of maintenance, too deep of discharge, or from freezing condition.
- Misusing the Xebra, such as driving over curbs, overloading or racing.
- Tampering with the Xebra.
- Altering or modifying the Xebra, including the body, chassis, mechanical or electrical.
- Customer applied chemicals or accidental spills.
- Using contaminated or improper fluids.
- Non - manufacturer parts installed after the vehicle leaves the manufacturer's factory or control.
- Transportation expenses for warranty services.
- Damages related to plastic and finish on plastic and dashboard, including but not limited to scratches, cracks, and discoloration.
- Driving through water deep enough to cause electrical system damage.
- This warranty does not cover such tires that have failed as a result from normal wear, road hazards such as: (cuts, bruises, impacts, punctures, etc.); overloading, excessive speed, spinning on slippery surfaces, improper inflation, tire chains, wheel misalignment; improper application, damage caused by abuse, collision, accident, fire or vandalism. Any damage caused by a puncture or tire repair also is not covered.
- Parts and labor needed to maintain the Xebra, and the replacement of parts due to normal wear and tear.

- Surface rust and deterioration of paint, trim, upholstery, and other appearance items that result from use and/or exposure to the elements including sun damage.
- Using the Xebra to tow other vehicles, trailers etc., may void warranty.

2(a) SEPARATE MANUFACTURER'S WARRANTY

Batteries, Controller, and Charger are covered under separate manufacturer's warranty.

3. VOIDING OF WARRANTY

THIS AND ANY OTHER WARRANTY SHALL BE VOID IF THE VEHICLE IS ABUSED OR USED IN AN UNINTENDED MANNER OR SHOWS INDICATIONS THAT IT HAS BEEN ALTERED IN ANYWAY, INCLUDING, BUT NOT LIMITED TO, USE OF NON-GENUINE MANUFACTURER PARTS INCLUDING BATTERIES, MODIFICATION OF THE SPEED GOVERNOR, BRAKING SYSTEM, STEERING, TRANSAXLE, OR OTHER OPERATING SYSTEMS OF THE VEHICLE TO CAUSE IT TO PERFORM OUTSIDE MANUFACTURER SPECIFICATIONS. THE WARRANTY IS LIKE WISE VOID IF THE VEHICLE SHOWS INDICATIONS THAT REASONABLE OR NECESSARY MAINTENANCE AS OUTLINED IN THE OPERATION AND MAINTENANCE SECTION OF THE OWNER'S MANUAL WAS NOT PERFORMED AT THE TIME AND IN THE MANNER SPECIFIED IN SUCH MANUALS.

FAILURE OF DEALER TO PROVIDE A PDI, BILL OF SALE AND REGISTRATION-WARRANTY CARD WILL VOID WARRANTY.

4. INTERNATIONAL SALES

All inclusions and exclusions of the manufacturer Warranty apply, except for reimbursement for shipping of parts outside the United States.

5. HOW TO MAKE A WARRANTY CLAIM

Customer must give the manufacturer or authorized XEBRA dealer notice of any claim within a reasonable period of time, not to exceed thirty days. The manufacturer will not repair any condition or replace any part if a claim is not made in a timely manner. Customer must present the vehicle or defective part to an authorized XEBRA dealer. Prior to the beginning of repair or replacement of defective parts a repair/work order must be signed, and the XEBRA Warranty Registration Card and/or proof of purchase must be presented to the dealer.

Dealer must have returned the PDI and a copy of the registration to the manufacturer. All parts replaced under this warranty become the property of the manufacturer.

6. DISCLAIMER

THIS WARRANTY IS EXCLUSIVE. THE MANUFACTURER MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE OBLIGATIONS OR TIME LIMITS STATED IN THIS WARRANTY ARE HEREBY DISCLAIMED BY THE MANUFACTURER AND EXCLUDED FROM THIS WARRANTY. THE PURCHASER AND THE MANUFACTURER EXPRESSLY AGREE THAT THE REMEDY OF REPAIR OR REPLACEMENT OF THE DEFECTIVE VEHICLE OR COMPONENT THEREOF IS THE EXCLUSIVE AND SOLE REMEDY OF THE PURCHASER. THE MANUFACTURER MAKES NO OTHER REPRESENTATION OR WARRANTY OF ANY KIND, AND NO REPRESENTATIVE, EMPLOYEE, OR DEALER OF THE MANUFACTURER HAS THE AUTHORITY TO MAKE OR IMPLY ANY REPRESENTATION, PROMISE, OR AGREEMENT WHICH IN ANY WAY VARIES THE TERMS OF THIS WARRANTY. THE MANUFACTURER RESERVES THE RIGHT TO MODIFY THIS WARRANTY AT ANY TIME, BEING UNDERSTOOD THAT SUCH MODIFICATION WILL NOT ALTER WARRANTY CONDITIONS APPLICABLE TO THE XEBRA SOLD WHILE THIS WARRANTY IS IN EFFECT.

7. SOLE REMEDY

THE MANUFACTURER'S ONLY LIABILTIY UNDER THIS WARRANTY, OR IN ANY ACTION WHETHER BASED UPON WARRANTY, CONTRACT, NEGLIGENCE, STRICT PRODUCT LIABILITY OR OTHERWISE, IS LIMITED TO THE REPAIR OR REPLACEMENT, AT THE MANUFACTURER'S OPTION, OF A VEHICLE OR COMPONENT THEREOF THAT THE MANUFACTURER DEEMS TO BE DEFECTIVE. REPLACEMENT SHALL MEAN FURNISHING, DURING THE APPLICABLE WARRANTY PERIOD, A NEW VEHICLE OR FACTORY RECONDITIONED VEHICLE OR COMPONENT THEREOF WHICH IS IDENTICAL OR REASONABLY EQUIVALENT TO THE WARRANTED PRODUCT OR COMPONENT AT NO COST TO THE PURCHASER. REPAIR SHALL MEAN REMEDYING A DEFECT IN THE VEHICLE OR COMPONENT THEREOF AT NO COST TO THE PURCHASER DURING THE APPLICABLE WARRANTY PERIOD. IF THE MANUFACTURER ELECTS TO REPAIR THE VEHICLE, IT MAY PROVIDE FACTORY RECONDITIONED PARTS OR COMPONENTS. ALL PARTS AND COMPONENTS REPLACED UNDER WARRANTY SHALL BECOME THE PROPERTY OF THE MANUFACTURER.

8. NO CONSEQUENTIAL DAMAGES

IN NO EVENT SHALL THE MANUFACTURER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING, BUT NOT LIMITED TO, SHIPPING COST TO DEALER, LOSS RELATED TO PROPERTY OTHER THAN THE VEHICLE, LOSS OF USE, LOSS OF TIME, INCONVENIENCE, OR ANY OTHER ECONOMIC LOSS.

9. CUSTOMER ASSISTANCE

In the event of a controversy or a dispute arising in connection with this manufacturer Warranty, the manufacturer suggests that you try to resolve the issue at the dealership level. We recommend discussing the issue with your authorized dealer's service manager or owner. If further assistance is required, please submit your complaint in writing to: ZAP, Customer Service Department, 501 Fourth Street,Santa Rosa, CA 95401 USA. Xebra@zapworld.com (707) 525-8658.

XEBRA MODELS & SPECIFICATIONS

Xebra ZAPCAR Steel Sedan
Length: 10.3 feet
Width: 5.3 feet
Height: 5.3 feet
Weight: 1441 lbs. (without fuel)
Gross Vehicle Weight: 2805 lbs.
Charger: Universal Changer on board
Classification: Zero Emission Vehicle

Xebra ZAPTRUCK Pick-up
Length: 11.2 feet
Width: 4.8 feet
Height: 5.3 feet
Weight: 1481 lbs. (without fuel)
Gross Vehicle Weight: 2805 lbs.
Charger: Universal Changer on board
Classification: Zero Emission Vehicleo

"The HERD"

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Xebra ZAPCAR Sedan

Xebra ZAPTRUCK Pickup

Vehicles in Development

ZAPTRUCK-XL

ZAP ALIAS

Xebra Xero Sedan
With Solar Panels

Xebra Xero Pickup
With Solar Panels

Visit your local dealership or **www.zapworld.com**
For shareholder information, ask your broker about ZAP (stock symbol ZAAP).

January 2009

Dear Electric Xebra Enthusiast,

Thank you and congratulations on purchasing the ultimate clean air vehicle! The Xebra is the first of its kind. To our knowledge it is the world's only affordable electric vehicle that meets federal standards and goes over 25 miles an hour. It is also the first Chinese-manufactured vehicle to come to the USA.

In these days of record-high gas prices, daily discussions of global warming and dependence on foreign oil, we appreciate your commitment to change. Investing in an electric vehicle company and/or buying an electric vehicle are two of the best things you can possibly do for the environment. We are looking for dealers. If you are interested please contact us!

We are proactive, not perfect. If you have ideas, we want to hear from you. If you can help spread the word about ZAP, please do so. Write to: gstarr@zapworld.com

As the first generation electric vehicle of its kind, we expect to learn over time how to make this vehicle better. We appreciate your pioneering spirit and value your input to help make the Xebra not only the first practical electric vehicle, but the best in its class.

Thank You Again!

ZAP®